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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,482	09/23/2005	Shaobo Zhang	B-5633PCT 622410-7	6541

36716 7590 07/22/2008

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EXAMINER	
HEIBER, SHANTELL LAKETA	
ART UNIT	PAPER NUMBER
2617	
MAIL DATE	DELIVERY MODE
07/22/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/520,482	ZHANG, SHAOBO	
	Examiner	Art Unit	
	SHANTELL HEIBER	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed on April 23, 2008 have been fully considered but they are not persuasive. The applicant argues in part that ***Alperovich is essentially irrelevant to the subject matter of the present invention, as it discloses providing location-based call forwarding within a mobile telecommunications network…..This has nothing in common with the presently claimed implementation of localized roaming of mobile subscribers.*** The examiner would like to point out that the applicant is claiming in Claim 1 (in part): *the RNM is adapted to allocate a local mobile phone number in the contracted roaming network for the* ***subscriber****, store mapping between the allocated local mobile phone number and the* ***subscriber****.* Alperovich et al. discloses the HLR receives the location update signal from the serving MSC and determines the service area currently serving the roaming mobile station. Utilizing the determined service area, the HLR retrieves the subscriber data, including the location-based call forwarding data, correlated with the current service area for the roaming mobile station. Upon receiving the location-based call forward to numbers from the HLR, the serving MSC stores the data at the attached VLR. Thereinafter, utilizing the service area dependent subscriber data, including the predetermined forward to numbers, provided by the HLR, the serving MSC provides mobile service to the roaming mobile station. (Col. 7, lines 24-30 and lines 34-41) Alperovich et al. discloses allocating a location-based call forward to number (local mobile phone number) in the service area (contracted roaming network) for the mobile

station (subscriber), storing mapping between the allocated location-based call forwarding data and the mobile station (subscriber). The applicant is not claiming *the RNM is adapted to allocate a local mobile phone number in the contracted roaming network for the* ***phone****, store mapping between the allocated local mobile phone number and the* ***phone***. Therefore, the examiner maintains all rejections as set forth below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alperovich et al. (Alperovich), U.S. Patent No. 5,978,673 in view of Chambers et al. (Chambers), U.S. Patent No. 6,587,688.

Regarding Claim 1, Alperovich discloses a network for implementing localized roaming of mobile subscribers, comprising: a Visiting Location Register (VLR) in a contracted roaming network, a Home Location Register (HLR) in a home network, and at least one Roaming Number Manager (RNM) connected with the HLR in the home network; wherein the HLR in the home network is adapted to inform an RNM corresponding to the current location of a subscriber roaming in the contracted roaming

network of subscriber location update upon receiving a request from the VLR in the contracted roaming network; the RNM is adapted to allocate a local mobile phone number in the contracted roaming network for the subscriber, store mapping between the allocated local mobile phone number and the subscriber, and return the allocated local mobile phone number to the HLR in the home network, and wherein the allocated local mobile phone number is adapted to be utilized to process an incoming call or an outgoing call in the contracted roaming network; and the HLR in the home network is further adapted to send the local mobile phone number in the contracted roaming network to the VLR in the contracted roaming network to be inserted in the VLR. **(Whenever a mobile station travels into a new location area, the mobile station performs a location update with the serving MSC. The serving MSC performs a location update with the HLR associated with the mobile station to inform the HLR of the mobile station's new location and the retrieve the requisite subscriber data. The HLR receives the location update signal from the serving MSC and determines the service area currently serving the roaming mobile station. Utilizing the determined service area, the HLR receives the subscriber data, including the location-based call forwarding data, correlated with the current service area for the roaming mobile station. Upon receiving the location-based forward to numbers from the HLR, the serving MSC stores the data at the attached VLR. Therefore, utilizing the service area dependent subscriber data, including the predetermined forward to numbers, provided by the HLR, the**

serving MSC provides mobile service to the roaming mobile station; Col. 7, lines 3-41).

Alperovich fails to specifically disclose allocating a local mobile phone number from a ***pool*** of local mobile phone numbers in the contracted roaming network for the subscriber.

In a similar field of endeavor, Chambers discloses providing telephone number data for international cellular roamer service. Chambers further discloses allocating a local mobile phone number from a ***pool*** of local mobile phone numbers in the contracted roaming network for the subscriber. **(When a call for an international roamer comes into the home system, the HLR sends a route request to the visited system. The visited MSC, assigns a temporary local directory number (TLDN), to the roamer. This TLDN is forwarded to the VLR. The VLR then forwards the international TLDN to the HLR and thence to the home MSC. The call is then routed, using the international TLDN, to the roamer; Col. 3, lines 36-47).**

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to accommodate the roamer outside of the roamer's home country (Chambers-Abstract).

Regarding Claim 2, Alperovich discloses wherein said RNM is embedded in said HLR. **(the HLR comprises the RNM)**

Regarding Claim 3, Alperovich discloses comprising: a. configuring the RNM with local mobile phone numbers in contracted roaming network, an independent Public Switched Telephone Network/Integrated Service Digital Network (PSTN/ISDN) number

and a signaling point code; b. configuring data in entities of the contracted roaming network and entities of the home network, so that the subscriber location query message taking a local number in the roaming network as the destination address will be directed to the RNM in the home network; c. establishing interfaces between the RNM and entities of the contracted roaming network as well as between the RNM and entities of the home network; and d. developing communication services in the roaming network based on the configuration in respective entities of the contracted roaming network and the home network, implementing localized roaming of the subscriber. **(The HLR retrieves the stored location based forward to numbers representing a local terminal within the serving service area and communicates back to the MSC; the MSC stores the data at the attached VLR. The serving MSC provides mobile service to the roaming mobile station; Col. 5, line 65-Col. 6, line 27 and Col. 7, lines 3-41).**

Regarding Claim 4, Alperovich discloses wherein said step c comprises: c1. establishing an interface between the RNM and an MSC in the roaming network; c2. establishing an interface between the RNM and the HLR in the home network. **(Col. 7, lines 3-41)**

Regarding Claim 5, Alperovich discloses wherein said step d comprises a subscriber location update process: d1. sending a location update request from the VLR currently serving the subscriber to the HLR in the home network **(MSC 30 is attached to VLR 50-Col. 4, lines 3-12)**; d2. according to the location update request received from the VLR and the current location of the subscriber, addressing the RNM

corresponding to the current location of the subscriber through the PSTN/ISDN number of RNM and informing the RNM of the subscriber location update, by the HLR in the home network **(Col. 4, lines 13-33)**; d3. allocating by the RNM a local mobile phone number in the roaming network, to the subscriber, and returning said number to the HLR in the home network **(Col. 4, lines 13-44)**; and d4. inserting said local mobile phone number in the roaming network into the VLR currently serving the subscriber and returning an acknowledgement message of obtaining said number in the roaming network to the RNM, by the HLR in the home network **(Col. 4, lines 13-44)**.

Regarding Claim 6, Alperovich discloses wherein step d3, before allocating a local mobile phone number to the subscriber, further comprises: determining by the RNM whether the roaming region where the subscriber is roaming is a contracted roaming region; if so, allocating one from the available numbers in the contracted roaming network and feedings the allocated number back to HLR in the home network by the RNM; otherwise feeding the mobile phone number of the subscriber in the home network to HLR in the home network. **(The HLR verifies the identity of the mobile station and updates its database with the MSC currently serving the mobile station. The HLR retrieves the location based forward to numbers and communicates the retrieved data to the serving MSC; Col. 4, lines 21-37).**

Regarding Claim 7, Alperovich discloses wherein an incoming call or an outgoing call, is processed by using the number fed back from RNM in the home network. **(Col. 7, lines 38-41).**

Regarding Claim 8, Alperovich discloses further comprising: informing the subscriber of the location update by voice, short message or Unstructured Supplementary Service Data. **(Col. 4, lines 13-44).**

Regarding Claim 9, Alperovich discloses wherein the call is processed by using the number fed back from RNM in the home network in the following manner: when acting as the caller, the subscriber uses the number fed back from the RNM in the home network to initiate a call; when the subscriber acts as the called party, if the called number is the mobile phone number in home network, the MSC in the home network queries HLR in the home network to determine the calling route, the HLR finds the corresponding subscriber record, obtains address of VLR currently serving the subscriber, and accesses said VLR to obtain the calling route, with which the HLR instructs the MSC in the home network to establish a calling route; if the called number is a local mobile phone number in a roaming region, the MSC in the roaming network queries RNM about calling route information, the RNM finds the subscriber identifier, queries the HLR about the calling route information in accordance with the subscriber identifier, and forwards the calling route information returned from HLR to the MSC in the roaming network **(Col. 3, lines 19-65)**.

Regarding Claim 10, Alperovich discloses further comprising: when the subscriber leaves the contracted roaming network, (HLR) in the home network informs the (RNM) of the subscriber location update, the RNM releases the local mobile phone number, occupied by the subscriber, in the roaming network, and breaks the mapping between the number and the subscriber. **(Col. 6, lines 24-27).**

Regarding Claim 11, Alperovich discloses further comprising: binding the local mobile phone number in the contracted roaming network to the subscriber. **(Col. 6, lines 14-23).**

Regarding Claim 12, Alperovich discloses wherein said VLR in step d1 addresses the HLR in the home network in accordance with International Mobile Subscriber identifier (IMSI) of the subscriber **(Col. 4, lines 13-16)**.

Regarding Claim 13, Alperovich discloses wherein the information carried the location update request sent from VLR to HLR in step d1 and the parameters carried in the location update informed from HLR to RNM in step d2 comprise: the IMSI of the subscriber and/or the mobile phone number in the home network, current location of the subscriber and old location of the subscriber **(Col. 4, lines 16-21)**.

Regarding Claim 14, Alperovich discloses wherein the subscriber location update process further comprises: d5. informing the RNM serving the old location of the subscriber by the HLR in the home region; d6. if there is no binding relation between the subscriber and the local mobile phone number occupied by the subscriber, releasing said local mobile phone number occupied by the subscriber by the RNM; d7. sending a response from the RNM to the HLR in the home network. **(Col. 6, lines 14-27).**

Regarding Claim 15, Alperovich discloses wherein the subscriber location update process further comprises: sending an acknowledgement for number allocation from the HLR to the RNM serving the current location of the subscriber, after receiving an acknowledgement for subscriber data insertion from VLR. **(Col. 7, lines 24-41).**

Regarding Claim 16, Alperovich discloses wherein the subscriber location update process further comprises: if not receiving the acknowledgement for number allocation from the HLR for a determined period, the RNM will release the allocated number. **(Col. 7, lines 24-41).**

Regarding Claim 17, Alperovich discloses wherein said step d comprises a process for calling the subscriber with the local mobile phone number in the roaming network **(the GMSC 20 can be part of the PLMN 10a or 10b which either 10a or 10b can be the roaming or home network-Col. 2, lines 53-64)**; said process comprising: d8. when the call is made to the subscriber with the local mobile phone number the roaming network, initiating a route query from a GMSC in the roaming network to the RNM currently serving the subscriber **(Col. 3, lines 19-30)**; d9. after receiving the query, the RNM searching for the subscriber identifier according to the local mobile phone number in the roaming network, and querying HLR in home network for about the calling route in accordance with the subscriber identifier **(Col. 3, lines 19-45)**; d10. returning the query result from the HLR in the home network to the RNM, which sends an acknowledgement for route query to the GMSC and instructs the GMSC to establish the route with the number obtained from the HLR **(Col. 3, lines 19-45)**.

Regarding Claim 18, Alperovich discloses wherein said step d also comprises a process for calling the subscriber with the mobile phone number in the home network **(the GMSC 20 can be part of the PLMN 10a or 10b which either 10a or 10b can be the roaming or home network-Col. 2, lines 53-64)**; said process comprising: d11. when the call is made to the subscriber by using the mobile phone number in the home

network, initiating a route query from a GMSC in the home network to the HLR in the home network **(Col. 3, lines 19-30)**; d12. after receiving the query, requesting the VLR currently serving the subscriber to allocate a temporary routing number according to the mobile phone number of the subscriber in the home network by the HLR in the home network **(Col. 3, lines 19-45)**; d13. allocating, by the VLR currently serving the subscriber, a temporary routing number to the subscriber, and returning said temporary routing number to the HLR in the home network **(Col. 3, lines 19-45)**; d14. sending an acknowledgement for route query from the HLR in the home network to the GMSC in the home network, and instructing the GMSC to establish a route with the allocated temporary routing number **(Col. 3, lines 19-45)**.

Regarding Claim 19, Official Notice is taken in that the same procedure for establishing a call connection with the roaming subscriber according to Alperovich mentioned above can also be applied when sending short messages. It would have been obvious to also include short messages to provide for a variety of well known fast and easy options for communicating.

Conclusion

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

4. prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bharatia et al., U.S. Patent No. 6,615,037 discloses a method apparatus and system for call forwarding when roaming from a first type network to a second type network in a communication system.

Houde et al., U.S. Patent No. 5,978,678 discloses a cellular telephone network routing method and apparatus for internationally roaming mobile stations.

Uchiyama et al., U.S. Patent No. 5,884,169 discloses a roaming mobile communication system and method.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shantell Heiber whose telephone number is (571)272-0886. The examiner can normally be reached on Monday-Friday 9:00am-5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on 571-272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. H./
Examiner, Art Unit 2617
July 17, 2008

/Lester Kincaid/

Supervisory Patent Examiner, Art Unit 2617